
The Food Economy: The Catalyst for Collapse?

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North Korea's economic woes are most visible to the international community in the food sector. But this crisis in the agricultural sector is inextricably linked to the country's wider economic problems, namely the energy shortages and lack of hard currency. In the absence of economy-wide reforms, North Korea faces recurrent food supply difficulties, given its limited potential to expand domestic food production and given the economic and ecological unsustainability of conducting barter trade based on raw materials. North Korea's only real hope is to pursue greater economic interaction with the international community and to adopt reform measures aimed at addressing its balance of payment constraints. Signs are emerging that North Korea may be willing to choose such a path. The international community can hasten this process by adopting a bold policy of economic engagement.

Assessment of Current Conditions

North Korea does not have a natural comparative advantage in agriculture.¹ As a predominantly mountainous country, its natural conditions are not well suited to achieving food self-sufficiency. Problems of limited arable land are compounded by a high dependence on imported fertilizer

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1. This section draws heavily on the analysis contained in Smith (1997).

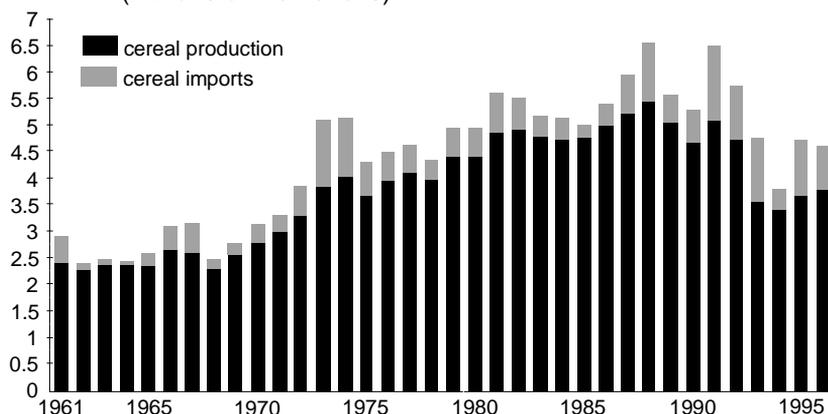
and energy inputs, declining soil fertility due to monoculture and intensive farming techniques, and climatic conditions that constrain cropping systems and rotations. Attempts at cultivating marginal lands and terraces have resulted in serious erosion; and efforts to reclaim tidal areas to expand arable land have, according to the UN World Food Program (WFP), been largely unsuccessful. Fuel shortages remain one of the largest obstacles to recovery. Not only does North Korea lack the petroleum necessary to produce the fertilizer required by its chemical-dependent production techniques, but these shortages have also severely hampered the infrastructure and distribution system vital to agriculture. The loss of socialist trading partners has severely curtailed the North's capacity to import these essential inputs. Successive years of flooding followed by drought have further set back agriculture and significantly compounded underlying food production problems.

The World Food Program/Food and Agriculture Organization (FAO) assessments, coupled with anecdotal reports, have provided compelling accounts of the depth of current food conditions. But aid officials have been warning for two years of a famine in the making. Over this period, considerable differences have emerged in the assessments and rhetoric of the international aid organizations, South Korean government agencies, the reports of defectors, and individual travelers' impressions as to the severity of the food crisis. The disparities have centered on the size of the grain stockpile North Korea was storing, the extent to which grain aid was being diverted to the military, and the extent and seriousness of the crop damage as reported by North Korea following the floods.

Even as the impact of the food shortage became more widespread during 1997, differing assessments emerged from the United States, aid agencies, Japan, South Korea, and China as to the scale of the crisis, the ability of grain aid from the outside world to head off famine, and the implications of the crisis for regime stability. The WFP, for example, criticized the amount of grain aid from the international community in the run-up to the 1997 October harvest as being insufficient to meet consumption requirements. WFP statements that "a grave food security situation is developing in all parts of the country" and that North Korea faces "one of the biggest humanitarian disasters of our lifetime" look odd, though, when placed next to reports of Chinese Foreign Ministry officials that North Korea had averted a major food crisis. This confusion is further complicated by the North's ambivalence at times about how desperate a picture to paint to the outside world, as exemplified by the cancellation of the Cargill deal, the channeling of resources into "monument construction" and the defense sector, and reported shopping expeditions to Japan in preparation for Kim Jung Il's accession.

The primary sources on which governments have relied in formulating their responses to the food problem in North Korea have been the estimates undertaken by the WFP in conjunction with the FAO. These

Figure 1 Food cereal production and imports: North Korea, 1961-96
(millions of metric tons)



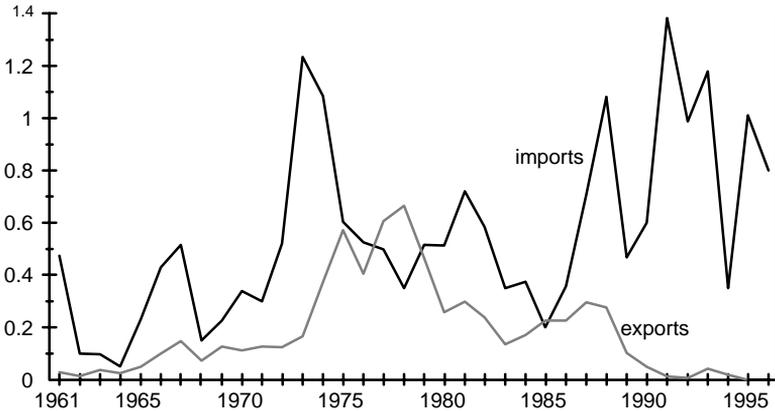
Notes: Cereals are defined as rice (husked equivalent), maize, wheat, oats, sorghum, millet, and barley. Rice estimates for 1995-97 are milled equivalent.

Source: Smith (1997). Data for 1961-92 are from the International Economic Data Bank, Australian National University, and *Food and Agricultural Organization (FAO) Production Yearbooks* (various years). Data for 1993 and 1994 are FAO estimates. Data for 1995-97 are WFP/FAO mission estimates. Import data for 1996 are WFP/FAO estimates of aid and imports for all of 1996 and for 1997 as of June.

assessments have in turn been based on discussions with North Korean agricultural officials, field visits, and analysis of regions where the principal effects of the floods and the recent drought have been felt. Such methods are imperfect to say the least; but because of the restricted (although increasing) access provided by the North Korean authorities to the international relief agencies, they remain the only means through which policymakers can make judgments and respond.

North Korea has, in the past, reported agricultural production data to the FAO, although it is not clear to what extent the FAO supplements this data with its own estimates. With the recent economic deterioration, from 1992 to 1995 the FAO undertook its own estimates; its estimates for 1996 and 1997 are based on WFP/FAO mission reports following access in the wake of the floods. Although ignored by South Korean agencies that assume the data may be inflated, scholarly research provides reasonable support for the historical FAO data series as broadly reflective of North Korean agricultural trends (see Smith 1997): that is, cereal production increased rapidly during the late 1970s, in the wake of mobilization plans and technological drives following collectivization, then began to fall off in the second half of the late 1980s, with an increasing reliance on imports from the early 1990s (figure 1). After peaking during 1985 to 1989 with a five-year average of 5.1 million metric tons, cereal production declined significantly, to average 4.1 million tons between 1990 and 1995. Shortfalls

Figure 2 Exports and imports of cereals: North Korea, 1961-96
(millions of metric tons)



Notes: Imports include commercial trade, food aid granted on specific terms, donated quantities, and estimates of unrecorded trade. Imports and exports for 1996 are FAO/WFP estimates for all of 1996 and for 1997 as of June.

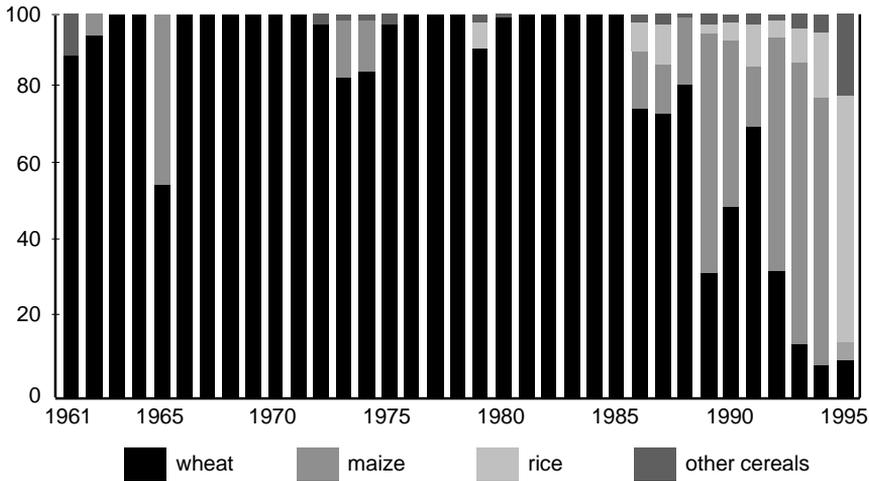
Source: Smith (1997). Data are from *FAO Production Yearbooks* (various years).

between 1990 and 1993 were largely offset by imports from China, and by rice donations from Japan and South Korea during 1994. Conditions were clearly deteriorating prior to the floods of August 1995, but it could also be said that North Korea very quickly learned the value of foreign aid. In 1995/96, almost 65 percent of North Korean imports of grain consisted of rice, an unprecedented amount given that grain imports between 1960 and 1985 had consisted almost exclusively of wheat (figures 2 and 3). Moreover, 95 percent of those rice imports were donated or provided on highly concessionary terms.

That the North Korean government has deliberately released some exaggerated data and statistics in order to continuously attract food aid from the international community remains a possibility. One would expect the consumption of meat and dairy products now to be negligible, as the WFP has reported that the majority of livestock have been culled because of the lack of feed over the last two years. This looks odd, however, against North Korea's statements that some 237,000 domestic stock perished in the drought prior to the 1997 harvest.

Following missions to North Korea in late 1996 and again in late May 1997, the WFP/FAO estimated that some 2.3 million tons of grain would be needed to meet minimum daily rations through October, the beginning of the 1997 harvest year. Despite appeals for food aid, by June the shortfall was still some 1.2 million tons. Prior to harvest, daily rations for a large section of the population are reported as having fallen to as little as 100 grams of rice, well below the FAO estimated minimum

Figure 3 Composition of cereal imports: North Korea, 1961-95
(percentages)



Notes: Rice is milled equivalent. Other cereals include flour of wheat, barley, sorghum, and buckwheat.

Source: Smith (1997). Data are from *FAO Production Yearbooks* (various years).

requirement of 460 grams (167 kg/yr). South Korea’s Unification Ministry has recently estimated that by the end of August, between 0.8 and 1 million tons of food aid would have reached North Korea, and that this, combined with estimated domestic production in 1996/97 of between 2.8 and 3 million tons, could be sufficient to tide North Korea over to harvest.²

There are also several anomalies in the assumptions underlying FAO/WFP estimates of the past two years (FAO/WFP 1995, 1996a, 1996b, 1997), which do not seem consonant with historical patterns of North Korean food consumption and production trends; these contradictions suggest that food aid already committed and in the pipeline may be sufficient to meet North Korea’s basic food needs.

First, the share of rice and maize in total cereal intake has historically been much lower than that assumed by international agencies in assess-

2. This prediction is based on an estimated food shortfall for 1996/97 of 1.9 million tons. According to the Unification Ministry tally, 1.5 million tons of food had either been channeled to North Korea by the end of June or will be delivered in the coming months. This includes 282,000 tons of food aid donated between November and June, and an additional 354,000 tons of aid in the pipeline; 416,000 tons of food delivered through border trade with China between November and June, followed by a further 260,000 tons of food expected by October; and 120,000 tons promised from Europe and the International Red Cross.

ing North Korean per capita grain consumption. This implies the population has as a rule received lower rations than recent estimates suggest. The FAO/WFP assume that cereal (defined as rice, corn, wheat, millet, sorghum, and barley) consumption accounts for approximately 75 percent of total caloric intake on an average per capita basis, with the remaining 25 percent coming from fish, meat, vegetables, fats, and so on. Yet food balance sheets constructed from FAO data indicate that cereals have historically accounted for a much lower share of caloric intake, averaging over the past four decades between 30 and 45 percent of total food consumption (table 1, column 6) (Smith 1997). Based on their discussions with North Korean officials, the FAO/WFP also assume that rice constitutes 70 percent of the cereal intake and maize 30 percent, although the cereal composition of rations was revised down to 60 percent rice and 40 percent maize following the 1995 floods. But the contribution of rice and particularly maize to the North Korean diet has historically been less, suggesting that the FAO/WFP estimate overstates their proportion in the North Korean diet (table 1, columns 1-4).

Second, the significance of “other” grains in the North Korean diet also appears to have been underestimated. The composition of other grains—pulses (beans) and starchy roots (potatoes and sweet potatoes)—have historically been a significant source of protein and carbohydrates in the North Korean diet, to a much greater extent than in South Korea (figures 4 and 5). If this wider definition of grain is taken to include pulses and starchy roots, their share in average annual per capita grain consumption has been similar to that of maize, at between 20 and 30 percent (table 1, column 5).

Third, even FAO/WFP assumptions of “minimum” consumption standards of rice and maize needed to sustain the population appear higher than those of the past. In estimating per capita grain consumption needs, the FAO/WFP assume per capita yearly consumption of cereals for 1996 and 1997 of 167 kg (100 kg from milled rice and 67 kg from maize). This is still above the average per capita consumption of rice and maize during the period 1961 to 1971 (137 kg), suggesting that North Koreans have historically received lower cereal rations than commonly thought (figure 6). The FAO has recently revised the rice and maize series, presumably in the wake of mission visits to North Korea. These revisions need to be treated with caution. On the basis of the May 1997 revision, the assumption of minimum consumption standards of (milled) rice of 100 kg per capita implies that per capita consumption of rice in 1996 and 1997 was higher than at any time since 1968 (figure 7). Another (upward) revision of the series in June now suggests minimum consumption of rice for 1996/97 as equivalent to that for the peak years of average per capita consumption in 1983 and 1991, while consumption of rice and maize for 1996/97 would be higher than at any time in the past 36 years (figure 6)!

Table 1 North Korean per capita consumption of cereals and grains, percentage share, 5 year average

	Rice (share of cereal consumption) (1)	Maize (share of cereal consumption) (2)	Rice (share of total grain consumption) (3)	Maize (share of total grain consumption) (4)	Starchy roots, pulses (share of total grain consumption) (5)	Cereals (share of total food consumption) (6)	Fruit and vegetables (share of total food consumption) (7)
1961	–	–	–	–	–	–	–
1965	50.3	28.4	35.4	19.9	29.6	45.2	22.9
1970	49.8	28.0	35.6	19.9	28.5	45.2	24.1
1975	51.6	24.6	39.4	18.7	24.1	47.2	26.4
1980	60.1	22.6	45.4	16.8	25.8	43.2	28.9
1985	62.0	25.2	47.2	18.8	25.6	41.8	31.3
1990	61.4	27.0	44.8	19.4	27.9	37.8	38.0
1994 ^a	52.0	31.0	37.5	21.6	30.5	32.0	32.8

a. 4-year average.

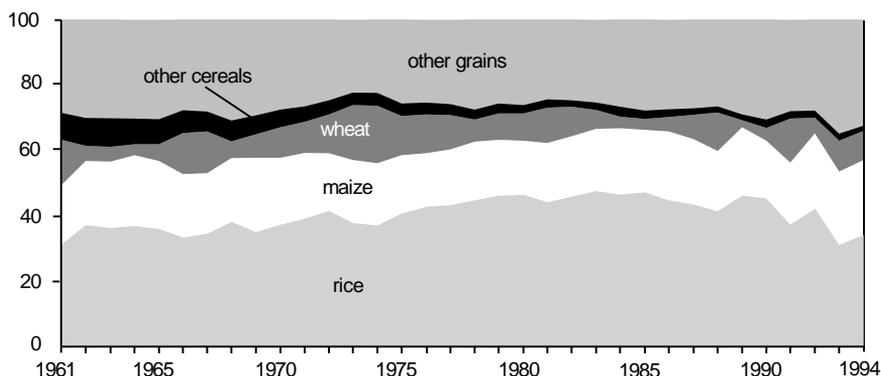
Notes: Cereals include rice (husked equivalent), maize, wheat, millet, barley, and sorghum.

Total grain consumption includes cereals plus starchy roots (potatoes and sweet potatoes) and pulses (beans).

Total food consumption includes cereals, starchy roots, pulses, vegetables, fruit, meat, eggs, milk, fish, edible oils, and alcohol.

Source: Based on food balance sheet constructed by the author from FAO data. See Smith (1997).

Figure 4 Composition of food grain consumption: North Korea, 1961-94 (percentages)



Note: Other grains includes starchy roots and pulses.

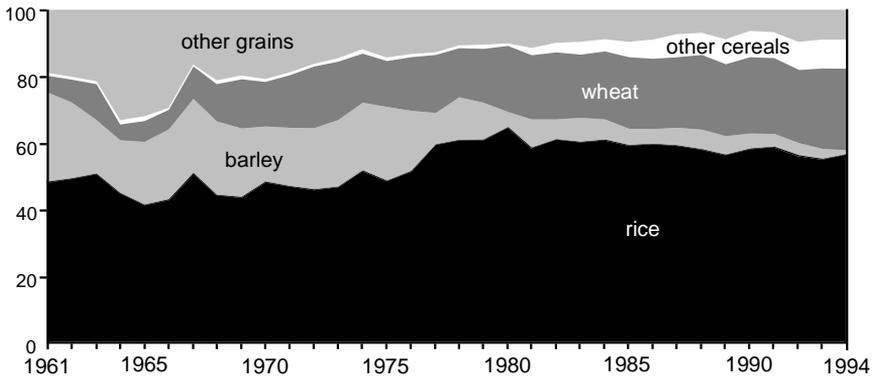
Source: Smith (1997). Data are from *FAO Production Yearbooks* (various years).

Fourth, the WFP/FAO also assume that 50 percent of the 1996 harvest of maize and the bulk of the harvest of potatoes have already been consumed. They further assume that 36,000 hectares of potatoes were planted, with a total output of potatoes in 1996 of 283,000 tons. It is hard to reconcile this, however, with the FAO's own series that show the area of potatoes planted and production of potatoes to have been significantly higher historically, averaging 152,000 hectares planted, with 1.3 million tons of output for food consumption purposes between 1985 and 1990.

Fifth, fruit and vegetables are also a significant component in the North Korean diet, in recent years accounting for around one-third of total food consumption—equivalent to that of cereals (table 1, columns 6 and 7). Fish and marine products are also an important source of protein in the North Korean diet, much more so than meat. Historically, fish and marine products have accounted for 5 to 8 percent of total food consumption, with consumption rising from an average of 27 kg/yr in the early 1960s to 43kg/yr in the first half of the 1990s. This compares with an average per capita consumption of meat over the same period ranging between 7 kg/yr and 11 kg/yr.

The above observations are not intended to contradict reports of serious food shortages in North Korea. The country is in economic crisis; people are dying, although exactly how many may never be known. The Public Distribution System has now reportedly collapsed, though the military distribution system appears to be functioning, and rations in the armed forces have been only slightly reduced. Without the international food aid already committed and in the pipeline, the real danger of "massive malnutrition" would seem impossible to refute, given

Figure 5 Composition of food grain consumption: South Korea, 1962-94 (percentages)



Note: Other grains includes starchy roots and pulses.

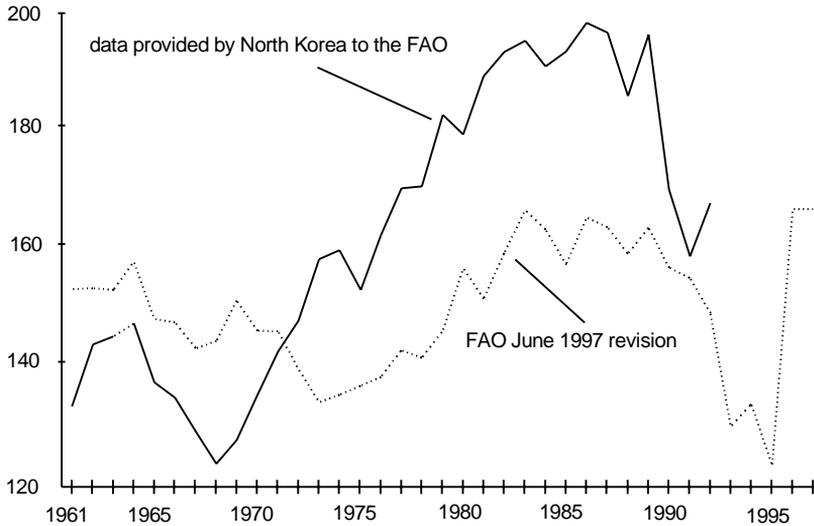
Source: Smith (1997). Data are from *FAO Production Yearbooks* (various years).

the consistency of reports emanating from those on the ground in North Korea. Because the drought occurred at a crucial time of the production cycle, North Korea will now require large-scale assistance during the production year 1997/98. And even if North Koreans have in the past survived on less, such nutritional stress is not sustainable. Two factors in particular complicate the analysis:

- the informational and methodological constraints that make it difficult to estimate accurately national food supply and individual caloric intake, therefore hampering assessment of the actual extent and incidence of severe hunger across North Korea, and
- the misleading picture that results from concentrating on only a subset of the food balance sheet as a basis for assessing North Korean (or any country's) nutritional needs.

It is also useful to place the current North Korean food crisis in the context of the experience of other countries. One approach is to compare North Korean cereal consumption patterns with both developing and transitional East Asian economies. There are obvious and important limitations involved in comparing intercountry food consumption patterns—these include differences in dietary preference, differing comparative advantages in food production, and varying capacities for substitution. Moreover, in North Korea's case, around one-third of the labor force is engaged in rural and agrarian activities. This is a considerably lower proportion than that of other East Asian economies prior to re-

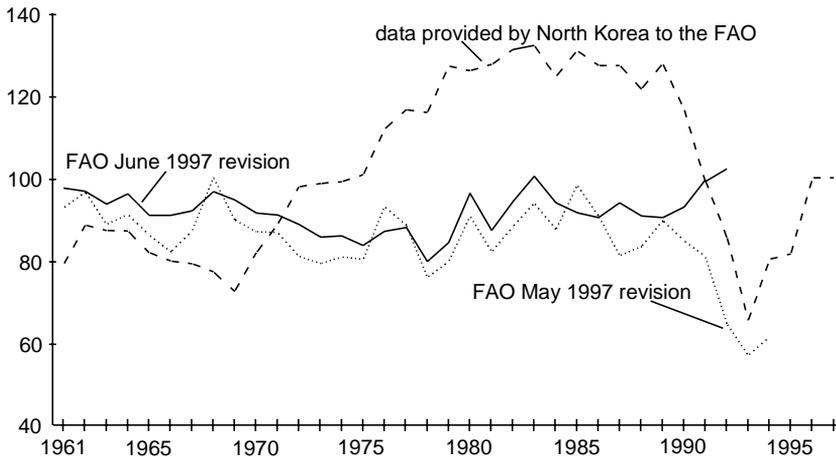
Figure 6 Per capita consumption of rice (milled) and maize: North Korea, 1961-97 (kilograms)



Note: Data for 1997 are estimated.

Source: Smith (1997).

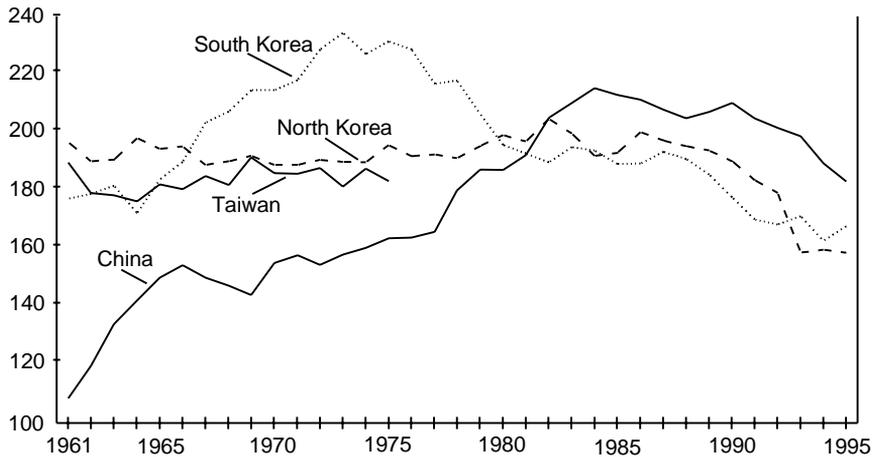
Figure 7 Per capita consumption of rice (milled): North Korea, 1961-97 (kilograms)



Note: Data for 1997 are estimated. Data for 1996-97 are based on FAO/WFP estimates of minimum consumption standards for rice. Data prior to this are for average consumption.

Source: Smith (1997).

Figure 8 Per capita consumption of cereals: North Korea, South Korea, China, and Taiwan, 1961-95 (kilograms)



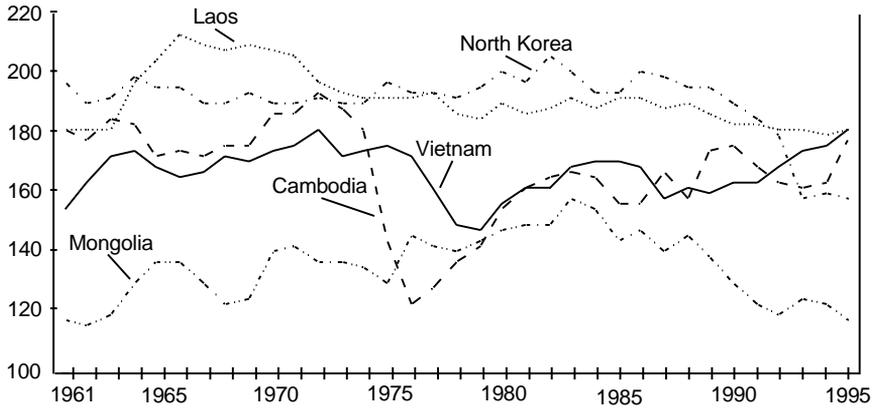
Note: North Korea cereal data are based on FAO June 1997 revision.

Sources: *FAO Production Yearbook* (various years); Garnaut and Ma (1992).

form, and it is a major constraint on North Korea's capacity to achieve self-sufficiency in food production.

With these limitations in mind, figures 8 through 14 show the recent FAO June 1997 revision—which should be regarded as the most conservative estimate of North Korean cereal consumption trends—plotted against cereal consumption trends of several East Asian economies. The Northeast Asian economies, in particular, provide the most useful comparator because their dietary preferences resemble each other most closely. They suggest that North Korea would not appear to be facing “one of the biggest humanitarian disasters of our lifetime,” for average cereal consumption is above that of China during the Great Leap Forward and the Cultural Revolution. But the fact that per capita cereal consumption is well above levels in other countries itself is a telling statement about North Korea's growth strategy based on central planning. Rising per capita income is the principle influence on changes in food consumption. The South Korean case presents the familiar East Asian story of rising real income growth accompanied by changing grain consumption patterns. As real incomes rise, (direct) cereal consumption increases less rapidly: more wheat and less coarse grains are consumed as staple foods, with the overall food consumption pattern shifting from carbohydrates to a more diversified diet. This (albeit superficial) comparison indicates that North Korean per capita income may well be considerably lower than the Bank of Korea's 1996 estimate of \$910.

Figure 9 Per capita consumption of cereals: North Korea and transitional East Asia economies, 1961-95 (kilograms)



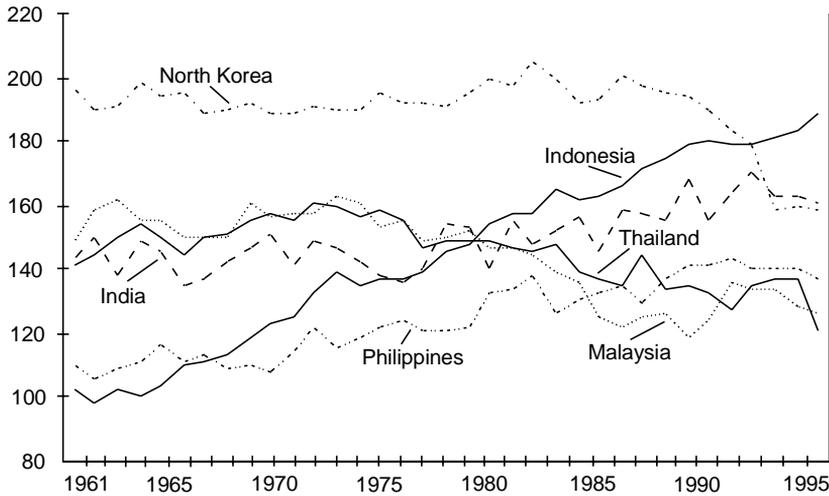
Sources: *FAO Production Yearbook* (various years).

Policy Responses under the Alternative Scenarios of Collapse or Evolutionary Adjustment

As the North Korean people view the current economic stresses as having been caused by external factors, rather than by either the North Korean system itself or the ineffective leadership of the Pyongyang regime, a collapse in the short to medium term is not likely to be precipitated by a popular uprising. A more plausible scenario is a coup d'état by either the military or a moderate political group advocating gradual reform. Such a move by the military is seen by some as the worst-case scenario. But the possibility that the military could, as in the South, emerge as the reformers cannot be totally discounted. The military has a big stake in North Korea's "second economy"—commanding trade companies, farms, and enterprises—and would benefit greatly from an opening up of the economy and the development of economic linkages with the international community (Smith 1997).

One early sign of internal disintegration would be the increased movement of citizens, either out of Pyongyang or industrial towns into the countryside in search of food or, alternatively, into Pyongyang from rural areas in search of food as they act on the knowledge that inhabitants of urban areas receive higher rations. Refugee movements, however, are a lagging rather than leading indicator. In North Korea's case, state control over movements of the population is likely to limit large-scale migration. Moreover, as in China during the Great Leap Forward, citizens may have little knowledge of the conditions in neighboring provinces,

Figure 10 Per capita consumption of cereals: North Korea, Thailand, Indonesia, Malaysia, the Philippines, and India, 1961-95 (kilograms)



Sources: *FAO Production Yearbook* (various years).

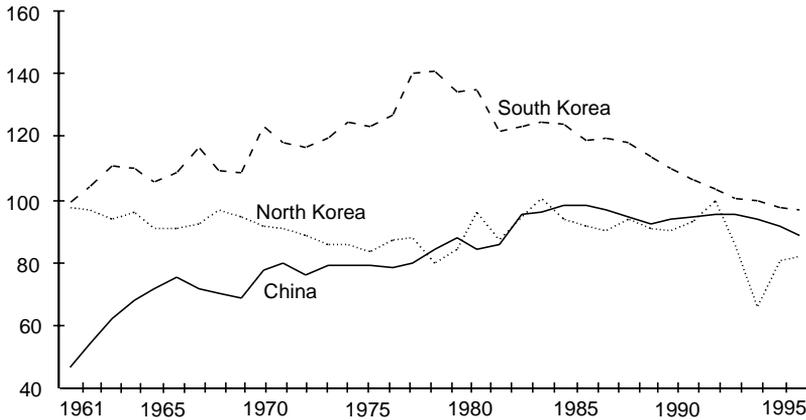
in which case significant pockets of starvation would likely exist before mass migration occurred.

In such a scenario, the best approach is increased monitoring by international aid workers of local conditions, which in turn requires international pressure on Pyongyang to allow aid workers unrestricted access to all parts of the country. The exchange of intelligence information among South Korea, China, and Russia would also assist in detecting increasing mobility. Well before mass migration occurred, these three countries would need to have decided whether they should open their borders to refugee flows or move to establish refugee camps. The South Korean government has undertaken some contingency planning in this regard, but the reported construction of several small-scale refugee camps designed for hundreds of residents is unlikely to suffice in the advent of an uncontrolled exodus.

Yet several reasons could also be advanced to support the argument that the current food crises and even a prolonged dependency on food aid do not represent a threat to the stability of the North Korean regime, and hence will not translate into collapse (Smith 1997).

First, using per capita rationing is a poor means of gauging the true food situation for the general population, since the disparity between access to food between the privileged and underprivileged and between the urban and rural population in North Korea is substantial. Urban centers, which house the bulk of the population, are accorded higher

Figure 11 Per capita consumption of milled rice: China, South Korea, and North Korea, 1961-95 (kilograms)



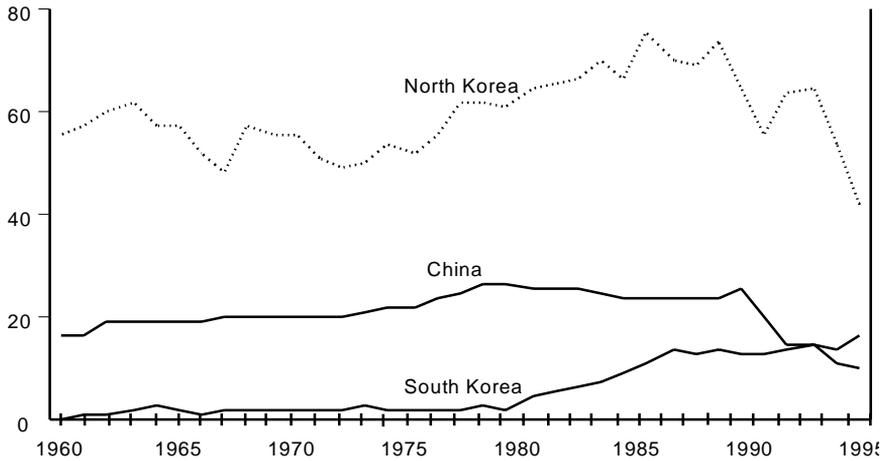
Note: North Korean data are based on FAO June 1997 revision.

Sources: FAO Production Yearbook (various years).

consumption standards. This group, encompassing the military, government and party officials, and workers in heavy industry, is likely to comprise a fairly large share of the nonagricultural population. Cereal rations of 100 grams per day (37 kg/yr) would be unlikely to apply to these groups and would not necessarily be representative of cereal consumption norms for the bulk of the population. Parts of the country, such as those on the coastline, the more fertile segments along the Chinese border, and Pyongyang, could remain relatively unscathed by the food shortage.

A second factor is the immobility of the North Korean population, whose movements have long been controlled through the household registration system. While there are reports of an increasingly mobile population within remote rural areas, the regime's strict control on the rural-urban movement of its people remains likely to place geographic limits on the visible effects of a food shortage. Those suffering the greatest nutritional stress would probably be located within the nonfarm rural areas in remote locations (such as along the more isolated areas of the China/North Korea border and in Ryanggang Province) where the distribution system has broken down, as well as among the 5 million collective farmers targeted by the aid agencies, who remain independent of the food distribution system and whose activities are limited solely to farming. The WFP has to date been denied access to Ryanggang Province on the Chinese border, while Pyongyang insists that the province has been supplied with maize donated from China.

Figure 12 Per capita consumption of maize: China, South Korea, and North Korea, 1960-95 (kilograms)

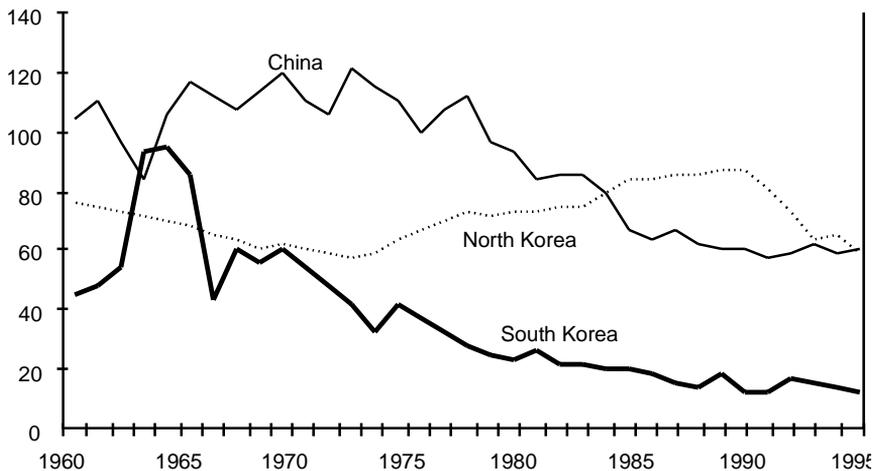


Source: FAO Production Yearbook (various years).

Third, communist regimes have on several occasions managed to cope politically with severe food crises, even those lasting for years. Mao and Stalin starved millions of their citizens and remained in power. The regime's demonstrated ability to isolate its people from the outside world suggests its aptitude for surviving the stresses it currently faces (Eberstadt 1997), although precisely this feature has led international aid experts to be concerned that a silent famine might be unfolding.

Fourth, North Korea's acknowledgment of food shortages to the international community, and the role of regional players in ensuring the North's economic survival, would also appear to make this case unique. China, as the major economic lifeline, is Pyongyang's strongest guarantor against collapse. Although 1993 officially marked the advent of hard-currency settlement terms in Chinese-North Korean trade, China has continued to serve as a de facto concessional supplier of grain. In 1993, North Korea obtained around 75 percent of its food and oil imports, along with nearly 90 percent of its coking coal, from China. Several unconfirmed reports emerged in mid-1996 that China had budgeted in its current Six-Year Plan a revival of its concessionary pricing practice, or "friendship price system," with North Korea. From 1996 until 2000, China will reportedly provide North Korea with 500,000 tons of grain, 1.3 million tons of crude oil, and 2.5 million tons of coal. Under this arrangement, half of the commodities are to be provided free, with the other half being offered at a rate equivalent to one-third of international prices. If the reports are correct, China's commitment would go a long

Figure 13 Per capita consumption of starchy roots: China, South Korea, and North Korea, 1960-95 (kilograms)



Source: FAO Production Yearbook (various years).

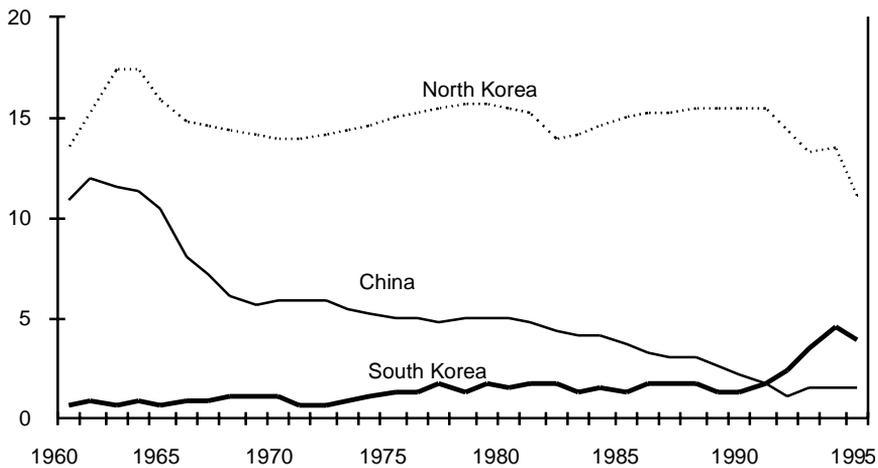
way to relieving North Korea's food problems in the short term (Smith 1997). China's provision of more than 500,000 tons of grain on concessional and grant terms in 1995 and 1996/97 suggest that it will continue to be the North's major grain supplier.³

Fifth, North Korea's agricultural decline is not completely irreversible. Food grain production (including starchy roots and pulses) could be stabilized between 5 and 6 million tons, leaving an annual shortage of around 1 to 1.5 million tons. Meeting this deficit would require both a significant reorganization of the agrarian incentive structure to encourage greater farm productivity and an increased capacity to earn foreign currency to pay for the food imports and for the fuel and fertilizer inputs needed to sustain agricultural functions. It would also require an end to the regime's ideological bias toward self-sufficiency in rice and maize cultivation, to be replaced by the development of agricultural production in accordance with natural conditions.

To meet this deficit North Korea would also need to pursue an active food import policy. This in turn would require the North to develop small-scale light industries through joint ventures and economic exchange with South Korean firms as a means of earning foreign exchange. There

3. According to the Korea International Trade Association, China-North Korean two-way trade for the year ending July 1997 totaled \$295 million. China's exports to North Korea made up the bulk of the trade, totaling \$210 million. Of this, grain comprised 27 percent (\$56 million) of total exports, flour products 21 percent (\$44 million), and crude oil 18 percent (\$37 million) (*Korea Herald*, 27 August 1997).

Figure 14 Per capita consumption of pulses: China, South Korea, and North Korea, 1960-95 (kilograms)



Source: *FAO Production Yearbook* (various years).

have been encouraging signs in recent months that the regime may be moving in this direction. North Korea is reportedly seeking to attract foreign investment into the cooperative farms through the leasing of land intended to cultivate products for overseas export. It has also approached South Korean trading companies to undertake joint-venture farming projects and has placed increased emphasis on processing-on-commission trade with South Korean firms in order to use profits to purchase grain from overseas.

There are also signs that, following considerable internal debate, the North Korean polity may finally have recognized that the Rajin-Sonbong Free Economic and Trade Zone will be insufficient to solve the North's systemic problems and may now be willing to adopt bolder measures. These include the recent adoption of the 11-point economic reform program submitted to the UN Development Program (UNDP) involving the establishment of additional tax free zones, currency reform in the Rajin-Sonbong economic zone, permission for citizens to run private businesses and freely trade in goods, and the establishment of free markets along the Chinese-Korean border.

Some interpret these opening policies as the first cautious steps in a new direction. To others, they represent, at best, a short-term tactical measure. There are of course obvious reasons why bolder reforms would not be viable from Pyongyang's perspective. Economic liberalization creates tremendous political risks. Nonetheless, when seen in historical context, these recent measures are a radical departure from the past (Smith 1997).

To date, North Korea's response to its food crisis has been fourfold—the adoption of the subteam contract farm system, the official sanctioning of farmers' markets, requests for international technology and capital to implement a revitalization policy, and requests for food aid. The adoption of a "sub-work team subcontracting system"—whereby work teams lease land from the cooperative farm and are given output in excess of a specified target—is significant and parallels the team production contracting system that China implemented temporarily before introducing the reward-based family responsibility system. However, this alone will not lead to sufficient increases in rural productivity. There are reports, for example, that production targets have been set too high; and the shortages of fertilizers and other supplies will make it difficult to produce more than the targeted amount. Several other rural reforms are needed. Such agricultural reforms as the diversification of the rural economy, product specialization and crop selection in accordance with regional comparative advantage (maize cultivation has always been ill-suited to North Korea's cold, northern climate), a marked rise of state procurement prices, the encouragement of a wide variety of nonfarm pursuits such as small-scale industry, the provision of transportation repair services (which in the case of China emerged as one of the most profitable enterprises in the countryside; see Johnson 1988, s223), and the introduction of free markets would all have a significant impact on agricultural production and farmers' incomes.

It is unlikely that North Korea would equal the sustained productivity gains in grain production that followed in the wake of Chinese agricultural reform, simply because its natural conditions and workforce structure are not conducive to large-scale agricultural production. Nonetheless, abolishing the cooperatives and raising the state purchase prices for agricultural products would bring about significant increases in agricultural output and would raise rural incomes.

North Korea's official ideology, "Socialism of Our Own Style," would not by itself exclude the possibility of embracing these reforms and a bolder opening-up of the economy. North Korea has been far more pragmatic and less rigid in its adherence to the concept of *juche* than is often recognized. While the stated policy goal has always been the construction of an independent and self-reliant national economy, what this has meant in practice has undergone considerable change over time. Despite official rhetorical statements to the contrary, the embryonic but important changes in the rural system over the past 18 months suggest that Kim Il Sung's so-called rural thesis may be more malleable and amenable to reinterpretation, in a way acceptable and consistent with North Korea's understanding of socialism, than commonly thought (Smith 1997).

Like China in the early stages of rural reform, the North Korean regime has in mind measures designed to function within the existing structures. Yet there is little evidence to indicate that, for example, the Chinese leadership anticipated that instituting the household responsi-

bility system would lead to the abolition of the communes. In fact, many of the most striking rural reforms in China were unplanned and unforeseen. The household responsibility system was created from the bottom up rather than from the top down, with government policy simply sanctioning locally initiated experiments (Johnson 1988, s231-32).

There is always the danger, though, that the North will continue to blame its current circumstances on the loss of socialist trading partners and on three years of natural disasters. However, political momentum for international support for food aid to Pyongyang is unlikely to be sustained if Pyongyang does not move to address the source of its food supply problem—its economic system. Here the United States and other countries, especially China, can usefully act in concert, stressing that economic assistance and linkages are conditional on the regime adopting advice on how to proceed with agricultural and economic reforms. Offering Pyongyang a comprehensive package deal in which the United States, South Korea, China, and Japan make clear commitments to a rural reconstruction fund (incorporating food aid through 1998) in return for binding commitments to four-party talks could be one possible approach. Such an approach may not be politically palatable to the North Korean regime because foreigners would necessarily be allowed into the rural areas. However, to some extent this process is already taking place, driven by the increasing access being granted to humanitarian aid agencies and foreign observers, the influx of workers (especially South Koreans) associated with the construction of the light-water reactor at Sinpo, and North Korea's reported desire to attract foreign investment into the rural sector.

In the meantime, considerable donor support will be needed to maintain and improve production capabilities in order to reduce the need for food aid. A double-cropping program has been launched by the United Nations and the North Korean government to help increase output. This involves planting spring barley from March to June, before the summer crops of rice and maize are sown. While it is feasible to grow barley intercropped with maize and vegetables in upland areas, such cultivation is impractical in low and paddy areas due to inappropriate soils, poor drainage, and inadequate time for maturation before the need to transplant the paddy (WFP/FAO 1997). Given the considerable environmental degradation that has taken place, considerable donor support will also be required for reforestation programs.

How Would Differing Responses to the Food Crisis Affect the Probabilities of These Outcomes?

To some, a strategy of economic engagement with North Korea is clearly naive and self-defeating in light of the North's schizophrenic foreign

policy actions. The United States, it is argued, has been too conciliatory and should toughen its bargaining posture toward Pyongyang in the hope that collapse comes sooner rather than later. Granting too much aid, it is argued, only serves to prop up a “rogue” regime.

But a strategy of isolation chosen to bring about collapse is hardly in the interests of regional stability. History also suggests that such hard-line stances do not alter North Korean behavior. Indeed, North Korea is likely to be most dangerous when it feels cornered; to this extent, the provision of food aid would help to keep Pyongyang from adventurist behavior. The alternative strategy—of refusing humanitarian aid, either because of doubts about the depth of the crisis or as a means of hastening the regime’s demise—is also a high-risk one for the reasons already discussed: collapse may not be imminent, the total indoctrination of the North Korean population would argue against a populist uprising, and the role and motivations of Northeast Asian players, especially China, would complicate the situation by seeking to avert collapse. Moreover, any strategy aimed at hastening collapse would have to be backed by a readiness to accept the adverse consequences and underwrite the associated costs of its success (Smith 1997).

With such collapse an event in the indefinite future, the policy ramifications are clear: the United States, South Korea, Japan, and increasingly China should pursue a two-track policy of managing tension reduction and integrating North Korea into the international community. To this end, efforts should be directed at averting an early economic collapse. This means a policy of economic engagement. While engagement may shore up the regime economically, increasing economic dependence also brings with it increased leverage; over time it is more likely than not to undermine the regime politically. Furthermore, this policy means that the major powers must accept the possibility that the Korean peninsula could remain divided for a long time, perhaps well into the next century.

United States

For now the United States has the most leverage. North Korea wants US diplomatic relations and a lifting of trade sanctions. These carrots should be forthcoming to the degree that they reduce the North’s military threat and opens its economy. For now, they should not be tied to food aid. Tying such aid to other objectives would be inconsistent with past US policy in providing humanitarian assistance to Cuba and Iraq. However, more pressure should be placed on Pyongyang to allow aid workers and donor government representatives greater freedom of movement within the country, to allow nutritionists to conduct a comprehensive nutritional assessment of the population, and to provide data on

agricultural conditions and output. Congressional support for food aid is unlikely to extend beyond 1998 unless these conditions are met, and unless Pyongyang moves to implement substantial reforms.

The current policy approach—stressing to North Korea that four-party talks remain the best vehicle for the increased economic cooperation it seeks—seems to be the right one. Leaving the door ajar provides the regime with the opportunity to develop new political relationships with the outside world and to opt for the economic opening required for longer-term survival.

To this end, a measured lifting of US economic sanctions and support for North Korea's admission into the International Bank for Reconstruction and Development (IBRD), International Monetary Fund (IMF), and Asian Development Bank (ADB) could help coax the North out of its rigid isolation into a more cooperative relationship, encouraging the regime to modify its behavior. Membership in such multilateral agencies would provide North Korea with the technical assistance and access to low-interest loans that will be required for rural and industrial reconstruction. On joining the ADB, for example, North Korea would become eligible for annual long-term loans of between \$100 and \$200 million—enough to secure its basic annual import needs of oil, coal, and grain.

North Korea has itself expressed a willingness to form economic linkages within the Asia Pacific, through participation in various nongovernment regional economic and security forums such as the Pacific Trade and Development Conference Series (PAFTAD) and Council for Security Cooperation in the Asia Pacific (CSCAP). Behind the scenes, North Korean officials have also sought international linkages and cooperation in the areas of education, energy, and agriculture. In the future, granting North Korea observer status to Asia Pacific Economic Cooperation ministerial or leaders' meetings would also expose a new generation of North Korean officials to the reform experiences of other East Asian economies and to the benefits that flow from regional economic cooperation.

China

North Korea relies heavily on China for economic assistance and international diplomatic support. For these reasons, China can have a crucial influence on North Korea's reform process. The pragmatic role that China is playing in averting collapse is an important one. While politically it would probably prefer the status quo, China's strategy has been realistic. Motivated by the possibility of refugee flows in the event of collapse and by fear of US troops on the Sino-Korean border, China has urged North Korea to follow its lead and seek economic reform with foreign capital and technological expertise (Smith 1997). But it remains difficult to assess the extent to which China is freely providing grain and energy

supplies to North Korea. While China has surplus grain, such generosity is unlikely to be unaccompanied by conditions—or in the very least advice on how to reform the agricultural sector. An ongoing provision of coal and oil would seem less likely in light of China's own increasing energy demands.

Japan

North Korea's desperate economic situation also increases the importance of Japan's potential influence. By linking diplomatic normalization and development assistance, Japan can also encourage the North in the direction of reform. Japan's current reported reluctance to support North Korea's entry into multilateral economic institutions such as the ADB is counter to the two-track policy required. And while Japan has its own political reasons for holding out on food aid, its stance has been contrary to the approach adopted by South Korea, the United States, and China. Japan has surplus stocks of rice and can easily provide rice aid up to the levels of previous years.

South Korea

South Korea is the key player in the period ahead. Regardless of the form and timing of reunification, South Korea needs to put more effort into preparing its economy for the impact (Smith 1997). This means pressing ahead with financial and fiscal reforms and adopting systematic procedures for dealing with issues such as refugees flows, alliance management with the United States and increasingly China, and the psychological preparation of the South Korean populace for the social and cultural impact of a collapsist scenario.

Understandably, the North's belligerent attitude grates on South Korea. This, combined with public perceptions that Seoul has increasingly been pushed to the sidelines in dealings with the North, has led the Blue House in the past to adopt a short-sighted stance often at odds with its longer-term reunification policy objectives. But there are signs in recent months of a major change in South Korean thinking on this issue. Conditional on the North's acceptance of four-party talks, South Korea has indicated its willingness to assist the North in economic reconstruction. The green light for investment has once again been given. Such steady increases in business ties with the North would support the hoped-for gradualist reform strategy. Unless South Korean business leads the way, few other countries (most significantly Japan) are likely to follow. South Korea's announcement that it would unconditionally support the North's entry into the ADB is also important (Smith 1997).

Over the coming months the Blue House is likely to be distracted by domestic political pressures. But South Korea's new president will need to take account of broader regional interests and adopt a more consistent unification policy. This means resisting the hard-line elements who seek nothing less than the total collapse of the North and pursuing a more consistent rather than vacillating commitment toward expanding economic and technical cooperation (Smith 1997). Seoul's inflexible posture has also at times frustrated US efforts at brokering peace. Yet the chaos and refugee flows certain to result from collapse would impose an enormous economic and social burden on the South. No player would benefit more should the regime in the North linger on and modify over time than South Korea.

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